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Edition 2.0 2024-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Optical fibres –
Part 1-22: Measurement methods and test procedures – Length measurement

Fibres optiques –
Partie 1-22: Méthodes de mesure et procédures d'essai – Mesure de la longueur

IEC 60793-1-22:2024 (en-fr)

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OPTICAL FIBRES –

Part 1-22: Measurement methods and test procedures – Length measurement

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IEC 60793-1-22 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics. It is an International Standard.

This second edition cancels and replaces the first edition published in 2001. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) Inclusion of category C single mode fibres in Table 1;
b) Inclusion of a new informative Annex F on Brillouin frequency shift test method to determine the tensile strain applied to a fibre.

The text of this International Standard is based on the following documents:

Draft	Report on voting
86A/2456/FDIS	86A/2474/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 60793 series, published under the general title *Optical fibres*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

INTRODUCTION

Publications in the IEC 60793-1 series concern measurement methods and test procedures as they apply to optical fibres.

Within the same series several different areas are grouped, as follows:

- IEC 60793-1-20 to IEC 60793-1-29: *Measurement methods and test procedures for dimensions*
- IEC 60793-1-30 to IEC 60793-1-39: *Measurement methods and test procedures for mechanical characteristics*
- IEC 60793-1-40 to IEC 60793-1-49: *Measurement methods and test procedures for transmission and optical characteristics*
- IEC 60793-1-50 to IEC 60793-1-59: *Measurement methods and test procedures for environmental characteristics*.
- IEC 60793-1-60 to IEC 60793-1-69: *Measurement methods and test procedures for polarization-maintaining fibres*.

IEC 60793-1-2X consists of the following parts, under the general title: Optical fibres:

- Part 1-20: Measurement methods and test procedures – Fibre geometry
- Part 1-21: Measurement methods and test procedures – Coating geometry
- Part 1-22: Measurement methods and test procedures - Length measurement

OPTICAL FIBRES –

Part 1-22: Measurement methods and test procedures – Length measurement

1 Scope

This part of IEC 60793 establishes uniform requirements for measuring the length and elongation of optical fibre (typically within cable).

The length of an optical fibre is a fundamental value for the evaluation of transmission characteristics such as losses and bandwidths.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60793-1-40, *Optical fibres – Part 1-40: Attenuation measurement methods*

IEC 60793-1-42, *Optical fibres – Part 1-42: Measurement methods and test procedures – Chromatic dispersion*

3 Terms, definitions, and abbreviated terms

3.1 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at https://www.electropedia.org/
- ISO Online browsing platform: available at https://www.iso.org/obp

3.2 Abbreviated terms

For the purposes of this document, the following abbreviated terms apply.

BOTDA	Brillouin optical time domain analysis
BOTDR	Brillouin optical time domain reflectometry
FWHM	full-width half-maximum
OTDR	optical time domain reflectometer
RMSW	root-mean-squared width
RTM	reference test method